

## A SYNOPSIS OF THE GENUS MELANDERIA ALDRICH

(DIPTERA, DOLICHOPODIDAE)

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The purpose of this paper is to provide a synopsis of the genus *Melanderia*. A new species, which occurs geographically between the two previously known species, is described. The genus is divided into two subgenera, with a new subgeneric name being proposed for *Melanderia curvipes* (Van Duzee).

The genus *Melanderia* was proposed by J. M. Aldrich in 1922 for a species of marine dolichopodid fly with remarkable "mandible-like" mouth parts. In the general habitus of external characters and on the usual key characters used, the genus *Melanderia* has been considered to be closely allied to the genus *Hydrophorus* Meigen. In her studies of the mouth parts, M. B. Cregan (1941, p. 30) considered the mouth parts sufficiently distinct to place *Melanderia* in a special group IX on the basis (in her terminology) "labrum not elongated; four prongs connected; no panels," while she placed *Hydrophorus* in group X with five other genera characterized by "labrum plate-like; four prongs connected; six panels geminately sclerotized." Her groups are not currently accepted.

The generic type, *Melanderia mandibulata* Aldrich, was collected along the Pacific ocean at Ilwaco, Washington, by A. L. Melander, and subsequently recorded from the northern California coast. A second species, *curvipes* (Van Duzee), described in the genus *Hydrophorus*, is distributed along the southern California coast. Recent collecting by the writer along the central California coast at Pacific Grove has revealed a third species which is closely related to *mandibulata* Aldrich.

The species of *Melanderia* are not inhabitants of sandy sea beaches, but appear to be confined to rocky areas along the Pacific sea coast which are subjected to strong wave action. The immature stages are unknown.

**Melanderia** Aldrich

1922. *Melanderia* Aldrich, Proc. Ent. Soc. Washington, 24(6): 146. Additional references: Snodgrass, 1922: 148-152 [morphology of mouth parts]; Curran, 1934: 221, 229, fig. 72 on p. 266 [keys, figure of head]; Neave, 1940: 85 [listed]; Cregan, 1941: 11, 20, 22, 23, 25, 27, 29, 30 [study of mouth parts]; Wirth & Stone, 1N: Usinger, 1956: 454 [key to California species].

*Generic Characterization.*—Medium-sized dolichopodids. First antennal joint bare above, third antennal joint short, arista dorsal. Palpi large and flat, resting upon the proboscis, proboscis greatly enlarged, its basal portion forming a very broad, short tube, the apical half fleshy, opening underneath in a longitudina-

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slit, each side bilobed, the outer side pieces extending forward in the form of mandibles. Head bulging behind, with numerous bristles below at the neck, a single row of which extend across the occiput above with only a slight interruption in the middle. Prothorax with spines around the neck except below. Pleura hairy or bristly in front of the posterior spiracle, acrostichal hairs in an irregular double row. Scutellum with a single pair of upright bristles; dorsocentral bristles 6 or 7, intraalar 2, one of which is directly on the suture, supraalar 1, postalar 1. Abdomen with 6 visible segments in the male, 5 in the female. Hind cross-vein of the wing beyond the middle, about its own length from the margin. Genital segments of the male rather prominent, but not extending forward under the venter.

#### Subgenus *Melanderia* Aldrich

Sternopleura haired on posterior half and first antennal segment with stout setulae below. Two known species.

*Type*.—*Melanderia mandibulata* Aldrich, by original designation.

#### *Melanderia (Melanderia) mandibulata* Aldrich

(Figures 2 and 5)

1922. *Melanderia mandibulata* Aldrich, Proc. Ent. Soc. Washington, 24(6): 146-147. [n. sp. from Ilwaco, Washington.] *Additional references*.—Snodgrass, 1922: 148-152, Plate 14 [morphology of mouth parts]; Aldrich, 1930: 1 [collected at Smith River, California]; Aldrich, 1931: 111 [collected at Smith River, California]; Aldrich, 1933: 36 [very restricted distribution at Smith River, California]; Cregan, 1941: 7, 9, 20; figs. 32, 50, 82, 119, 159, 190 [morphology of mouth parts]; Crampton, 1942: 148-149, fig. 7D [figure of head]; Wirth & Stone, IX: Usinger, 1956: 454 [key, California distribution].

*Type Depository*.—No. 25,240, United States National Museum.

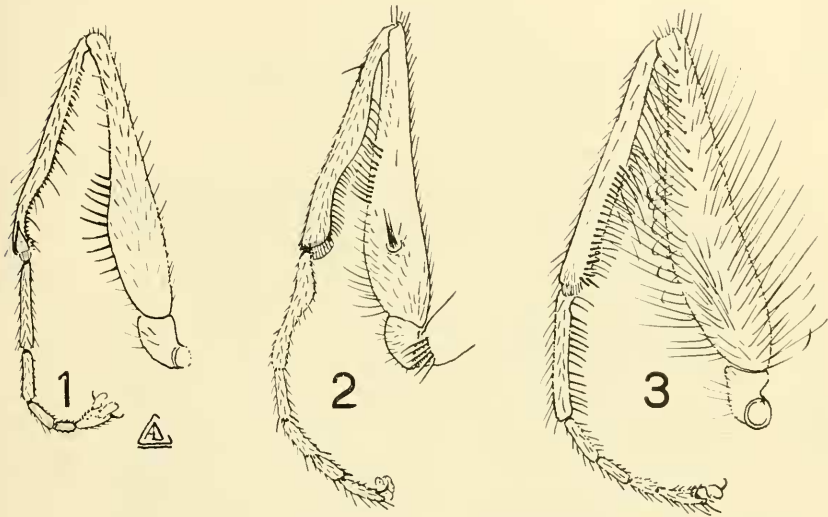
*Species Characterization*.—A large sized greenish species; face usually purplish; front femur of male on inner side with a close tuft of 8-10 bristles on a very slight protuberance, basitarsus modified with an enlargement on basal half; body length of male attains 5.5 mm., wing 6 mm.; body length of female attains 6 mm., wing 7.5 mm.

*Distribution*.—Specimens examined: 55 (42 males, 13 females). All in the collection of the United States National Museum except two topotypes in the collection of the writer. WASHINGTON: Holotype, allotype and 6 paratypes (2 males, 4 females) Ilwaco, Beach, [Pacific County], VII-17 (A. L. Melander) except 1 female paratype dated 27-VIII-17 (contrary to Aldrich's original published data on type series). Two topotypes, 1 male dated 27-VIII-17 and 1 female dated VII-17. CALIFORNIA: Smith River, [Del Norte County] (J. M. Aldrich) as follows: 6 males, 1 female, 12-VII-30; 28 males, 5 females, 21 to 25-VII-32; 4 males, 1 female [no dates].

**Melanderia (Melanderia) crepuscula** Arnaud, new species  
(Figures 3, 6, 7 and 8)

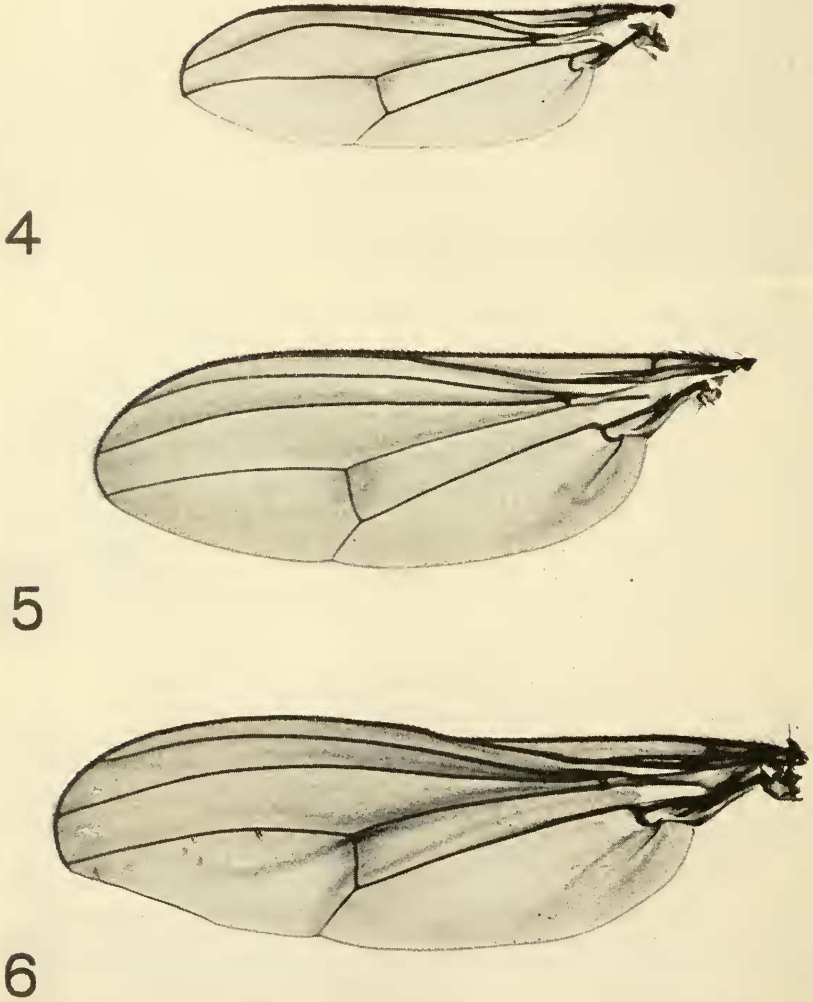
A large sized greenish species; male front femur long-haired with-out a tuft of bristles.

*Male*.—Length, 6.5 mm.; length of wing, 6.5 mm. **Head** with face and front dark metallic purple, with traces of greenish metallic iridescence, face 0.19 of head width at narrowest point. Palpi black, covered with a brownish pollen, with many black hairs; proboscis black, with brownish gray pollen except on the mandible-like parts which are shining black. Antennae black; first segment bare above but with setulae below; second segment less than half length of first, with



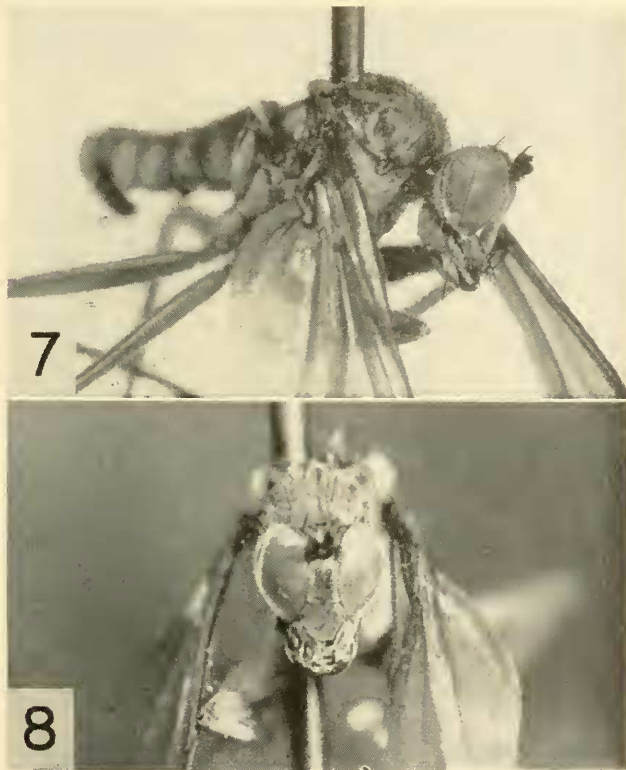
Figs. 1 to 3, inner side of front legs of male *Melanderia*. Fig. 1, *M. curvipes*; fig. 2, *M. mandibulata*; fig. 3, *M. crepuscula*. (Drawings by Arthur D. Cushman).

setulae above and below; third segment scarcely longer than wide, with short setulae on inner sides, at apex and below base of arista. Arista widened for distance twice its width and quickly tapering and slender for remainder of its length. Eyes with pale, thick, but very short pilosity. Back of head with long black hairs, the lower hairs the longest. **Thorax** with mesonotum and scutellum metallic greenish-blue with blackish reflections when viewed from above; mesonotum with two narrow blackish vittae, brownish pollinose above and whitish pollinose at sides. Scutellum with a well developed pair of midscutellar bristles and a number of very fine long hairs along posterior margin. Pleura green, with some iridescence, whitish pollinose; propleura with several black hairs and sternopleura with long slender black hairs on posterior half. Prosternum black, whitish pollinose, without hairs or bristles. Legs with front coxae, trochanter and femur (fig. 3) green with a thick white pollinosity; front tibia brownish pollinose; front femur with long black hairs and tibia with a comb of short black bristles on



Figs. 4 to 6, left wings of male *Melandria*, enlarged same magnification. Fig. 4, *M. curvipes*; fig. 5, *M. mandibulata* (paratype); fig. 6, *M. crepuscula* (holotype).

apical half. Middle and hind legs green, slender; the femora whitish pollinose on basal half and brownish pollinose apically; tibiae mostly brownish pollinose; femora and tibiae with long black hairs except for mid tibiae which are short haired and with one postero-dorsal bristle near base and three almost equally spaced postero-ventral bristles. Wing (fig. 6) elongated, narrow, brown in color, the third and fourth veins rather parallel and not approximate at wing apex; hind cross vein at right angles to costa. Halter yellow, with about 8 minute



*Melanderia mandibulata*, male holotype. Fig. 7, lateral view; fig. 8, front view.

black setulae on outer side. **Abdomen** colored as thorax, six visible segments brownish pollinose above and whitish pollinose on sides, somewhat compressed laterally. Hypopygium black, whitish pollinose, left basal portion with long black hairs; lamellae blackish with black hairs.

*Female*.—Body length 7.5 mm.; wing length 8 mm. Similar to male in coloration, but differs structurally in that the face is wider, 0.25 of head width at narrowest portion; legs less hairy and mid tibiae without bristles; abdomen with but five well developed segments ending in a short blackish spined ovipositor.

*Types*.—Holotype male, allotype, and 9 paratypes (3 males, 6 females) collected at Pt. Pinos, Pacific Grove, Monterey County, CALIFORNIA, 23 May 1952, (P. H. Arnaud, Jr.). Type No. 63,459, U.S.N.M. Holotype and allotype in the collection of the U.S.N.M. and paratypes in the collections of A. L. Melander, F. C. Harmston, and the writer. This series was collected at sunset on large rocks whose bases were washed by ocean breakers.

This species is allied to *mandibulata*, but it is readily distinguished in the male by the characters furnished in the key. *M. crepuscula* attains a larger size than *mandibulata*. I am unable at this time to provide characters which will consistently separate the females of these two species.

Subgenus **Wirthia** Arnaud, new subgenus

Distinguished by its bare sternopleura; first antennal segment bare below; wing with third vein arcuate and non-parallel with 4th, 3rd and 4th veins close together at wing tip. Dedicated to Dr. Willis W. Wirth. One included species.

*Type*.—*Hydrophorus curvipes* Van Duzee.

**Melanderia (Wirthia) curvipes** (Van Duzee)

(Figures 1 and 4)

1918. *Hydrophorus curvipes* Van Duzee, Ent. News, 29(2): 48-50, fig. 2 [n. sp. from San Diego and Long Beach, California]. *Additional references*.—Aldrich, 1922: 146-148 [generic transfer to *Melanderia*]; Snodgrass, 1922: 150-152, Plate 14 [morphology of head and mouth parts]; Van Duzee, 1923: 250 [in key to *Hydrophorus*]; Van Duzee, 1926: 5, 11 [p. 5, in key to *Hydrophorus*; p. 11, in list of *Hydrophorus*]; Wirth & Stone, IX: Usinger, 1956: 454 [key, distribution].

*Type Depository*.—No. 3501, California Academy of Sciences, San Francisco.

*Species Characterization*.—A medium sized grayish green species; face metallic green; front femur of male with a row of ventral bristles which can fit into the modification of the curved apical portion of tarsus; body length of male attains 4.5 mm.; body length of female attains 4.7 mm.

*Distribution*.—Specimens examined: 70 (30 males, 40 females). All in the collection of the United States National Museum. CALIFORNIA: Paratype female, San Diego, [San Diego Co.], 5-IV-15, (M. C. Van Duzee). 1 male, 2 females, Santa Barbara, [Santa Barbara Co.], 6-VII-17, (J. M. Aldrich). 29 males, 37 females, Laguna [Beach, Orange Co.], 1-VIII-32, (J. M. Aldrich).

KEY TO MALES OF MELANDERIA

1. Sternopleuron haired on posterior half; first antennal segment with stout setulae below (subgenus *Melanderia*) .....2  
 Sternopleuron bare; first antennal segment bare below (subgenus *Wirthia*)  
 (Santa Barbara Co. south to San Diego Co., Calif.) (figs. 1, 4) .....  
 ..... *curripes* (Van Duzee)
2. Front femur of male on inner side near base with a dense tuft of 8-10 bristles on a very slight protuberance, basitarsus modified with an enlargement on basal half (Del Norte Co., Calif. north to Ilwaco, Wash.) (figs. 2, 5)  
 ..... *mandibulata* Aldrich  
 Front femur of male without a tuft of bristles on inner side near base, but long black haired; basitarsus without enlargement on basal half (Monterey Co., Calif.) (figs. 3, 6, 7, 8) ..... *crepuscula*, new species

ACKNOWLEDGMENTS

I am indebted to Dr. A. L. Melander of Riverside, California, who gave me a pair of topotypes of *Melanderia mandibulata* Aldrich, and to Dr. Alan Stone of the Entomological Research Branch, Washington, D. C., for suggestions in the preparation of this paper.

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**DESIGNATION OF THE TYPE SPECIES OF THE SUBGENUS NEOTHEOBALDIA DOBROTWORSKY (GENUS THEOBALDIA NEVEU-LEMAIRE, 1902)**

(DIPTERA, CULICIDAE)

The subgenus *Neotheobaldia* Dobrotworsky (1954, Proc. Linn. Soc. N.S.W. lxxix:65-78) was described on the larval characters of *Theobaldia hilli* Edwards. This species is the type of the subgenus *Neotheobaldia*.—N. V. DOBROTWORSKY, *Zoology Department, University of Melbourne, Australia*.

**THE IDENTITY OF CULEX AESTUANS WIEDEMANN**

(DIPTERA, CULICIDAE)

The species *Culex aestuans* Wiedmann (Aussereurop. zweifl. Ins. 1:11, 1828) was described from specimens from Brazil in Wiedemann's own collection. Theobald (Mon. Culic. 2:151, 1901) synonymized this under *Culex fatigans* Wiedemann, a synonym of *Culex pipiens quinquefasciatus* Say. Howard, Dyar and Knab (Mosq. N. and C. Amer. 3:320, 1915) questioned the synonymy and since that time the species has remained unidentified.

Through the kindness of Dr. Max Beier of the Vienna Museum we have seen five specimens, probably all original material. These are in very good condition and all agree well with *Culex pipiens quinquefasciatus*, thereby verifying Theobald's synonymy. The specimens bear the following labels:

“Brasilien/aestuans m. Coll. Wiedem.” Male and female. I have mounted the terminalia of this male on a slide and here designate this specimen as the lectotype.

“aestuans m. Coll. Wiedem./C. aestuans m. Braçilia de Winth.” Female.

“Brasilien/aestuans Coll. Winthem./aestuans Wied. Brasilia.” Male.

“Brasilien/aestuans Coll. Winthem.” Female—

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